

# 5-1 Review Worksheet

**TARGET 5A**

## Rate of Change and Slope

Determine whether each rate of change is constant. If it is, find the rate of change and explain what it represents.

1. Hockey Team's Offense

Games	Goals
1	2
2	4
3	6

+1  
+1

$$\frac{+2}{+1} = 2 \text{ GOALS/GAME}$$

2. Miles Per Gallon

Gallons	Miles
1	28
3	84
5	140
7	196

+2  
+2  
+2

$$\frac{+56}{+2} = 28 \text{ mpg}$$

3. Cars Washed

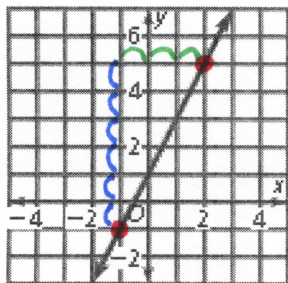
Hours	Cars
1	4
2	8
3	12
4	16

+1  
+1  
+1

$$\frac{+4}{+1} = 4 \text{ CARS/HR.}$$

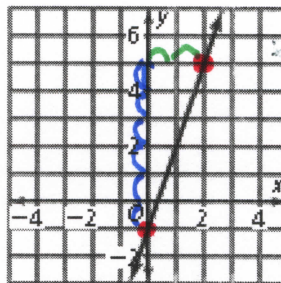
Find the slope of each line.

4.



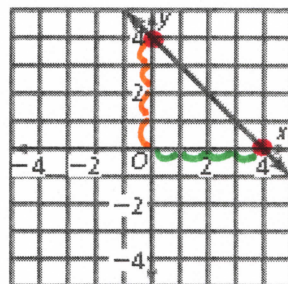
$$\frac{+6}{+3} = 2$$

5.



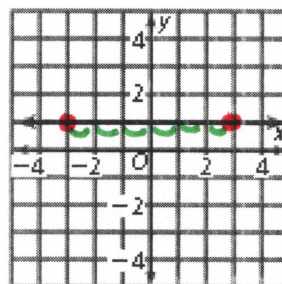
$$\frac{+7}{+2} = 3.5$$

6.



$$\frac{-4}{+4} = -1$$

7.



$$\frac{0}{+4} = 0$$

Find the slope of the line that passes through each pair of points.

8. (2, 1), (0, 0)  
POINT 1: (2, 1)  
POINT 2: (0, 0)

$$\frac{0-1}{0-2} = \frac{-1}{-2} = \frac{1}{2}$$

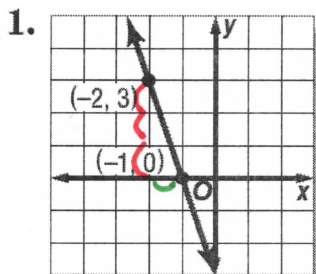
9. (4, 5), (6, 2)  
POINT 1: (4, 5)  
POINT 2: (6, 2)

$$\frac{2-5}{6-4} = \frac{-3}{2} = -\frac{3}{2}$$

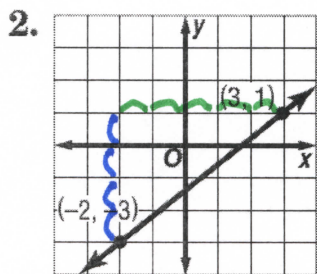
10. (3, 8), (7, 3)  
POINT 1: (3, 8)  
POINT 2: (7, 3)

$$\frac{3-8}{7-3} = \frac{-5}{4} = -\frac{5}{4}$$

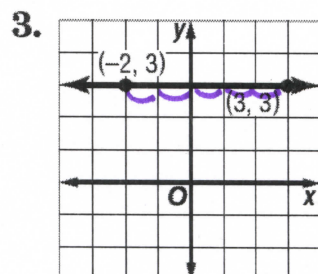
Find the **slope** ( $m$ ) of the line that passes through each pair of points (use the "Larkin Way" formula). **Reduce**.



$$\frac{-3}{+1} = -3$$



$$\frac{+4}{+5} = \frac{4}{5}$$



$$\frac{0}{+5} = 0$$

4. (6, -2), (5, -4)

$$\begin{array}{r|l} 6 & -2 \\ - & 5 \quad -4 \\ \hline 1 & 2 \end{array} = \frac{2}{1} = 2$$

5. (-7, 8), (-7, 5)

$$\begin{array}{r|l} -7 & 8 \\ - & -7 \quad 5 \\ \hline 0 & 3 \end{array} = \frac{3}{0} = \text{UNDEFINED}$$

6. (5, 9), (3, 9)

$$\begin{array}{r|l} 5 & 9 \\ - & 3 \quad 9 \\ \hline 2 & 0 \end{array} = \frac{0}{2} = 0$$

7. (15, 2), (-6, 5)

$$\begin{array}{r|l} 15 & 2 \\ - & -6 \quad 5 \\ \hline 21 & -3 \end{array} = \frac{-3}{21} = -\frac{1}{7}$$

8. (12, 10), (12, 5)

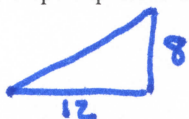
$$\begin{array}{r|l} 12 & 10 \\ - & 12 \quad 5 \\ \hline 0 & 5 \end{array} = \frac{5}{0} = \text{UNDEFINED}$$

9. (0.2, -0.9), (0.5, -0.9)

$$\begin{array}{r|l} 0.2 & -0.9 \\ - & 0.5 \quad -0.9 \\ \hline -0.3 & 0 \end{array} = \frac{0}{-0.3} = 0$$

### Rate of Change

10. **ROOFING** The *pitch* of a roof is the number of feet the roof rises for each 12 feet horizontally. If a roof has a pitch of 8, what is the slope expressed as a positive number? (Hint: Draw a picture)



$$\frac{8}{12} = \frac{2}{3}$$

11. **SALES** A daily newspaper had 12,125 subscribers when it began publication. Five years later, it has 10,100 subscribers. What is the average yearly rate of change in the number of subscribers for the five year period? (Hint: find change in subscription  $\div$  change in time)

$$\frac{\text{CHANGE \# SUBSCRIPTIONS}}{\text{\# YEARS}} = \frac{10,100 - 12,125}{5} = \frac{-2,025}{5} = -405 \text{ SUBSCRIBERS PER YEAR}$$